

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
28 October 2004 (28.10.2004)

PCT

(10) International Publication Number  
**WO 2004/092228 A1**

(51) International Patent Classification?: C08F 10/00,  
B01J 8/24

(21) International Application Number:  
PCT/EP2004/003638

(22) International Filing Date: 1 April 2004 (01.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
03076135.7 17 April 2003 (17.04.2003) EP  
60/482,702 26 June 2003 (26.06.2003) US

(71) Applicant (for all designated States except US): BASELL  
POLIOLEFINE ITALIA S.P.A. [IT/IT]; Via Per-  
golesi, 25, I-20124 Milano (IT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): PENZO, Giuseppe  
[IT/IT]; Via Segantini, 16, Montanara di Curtatone,  
I-46010 Mantova (IT). MEI, Gabriele [IT/IT]; Via Beata  
Lucia da Narni, 3, I-44100 Ferrara (IT). MEIER, Gerben  
[NL/DE]; Schumannstrasse 54, 60325 Frankfurt (DE).

(74) Agent: COLUCCI, Giuseppe; Basell Poliolefine Italia  
S.p.A, Intellectual Property, P.le G. Donegani, 12, I-44100  
Ferrara (IT).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-  
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,  
GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK,  
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,  
ML, MR, NE, SN, TD, TG).

**Declaration under Rule 4.17:**

— of inventorship (Rule 4.17(iv)) for US only

**Published:**

— with international search report  
— before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: GAS-PHASE OLEFIN POLYMERIZATION PROCESS

(57) Abstract: A continuous process for the olefin polymerization in a fluidized bed reactor, said process comprising continuously passing a gaseous stream comprising one or more  $\alpha$ -olefin monomers through the fluidized bed in the presence of a polymeriza-  
tion catalyst under reactive conditions, withdrawing polymeric product and unreacted fluids from the reactor, cooling part of said  
unreacted fluids below the dew point to form a two-phase mixture of gas and condensed liquid and reintroducing said two-phase  
mixture into the reactor, the process being characterized in that said twophase mixture is reintroduced under the distribution plate  
of the reactor so that a part of condensed liquid is separated from the gas and is successively fed above the fluidized bed through an  
external pipe connecting the bottom of the reactor to a point situated above the upper limit of the fluidized bed of polymer particles.

WO 2004/092228 A1